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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,684

07/21/2006

Pieter Matthijsse

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EXAMINER

CHIEM, DINH D

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,684	Applicant(s) MATTHIJSSE ET AL.	
	Examiner ERIN D. CHIEM	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17, 18 and 20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15, 17 and 18 is/are allowed.
- 6) ☒ Claim(s) 1-14 and 20 is/are rejected.
- 7) ☒ Claim(s) 1, 9 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/24/04 07/25/08 11/3/08</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The examiner would like to thank Mr. Richard Additon for the interviews and submission of proposed amendment to facilitate prosecution. The proposed amendment is accepted. Currently, claims 1-15, 17-18 and 20 are pending.

Claim Objections

Claim1 is objected to because of the following informalities: the claim status should be modified from “original” to *–amended–*or *–currently amended–*. Appropriate correction is required.

Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 9 is reciting the method step of v) of claim 1 since the contraction of the protective tube forms the preform rod.

Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The step of contraction process is carried out following the deposition process is cited in claim 1 step iv) wherein the “non-isothermal plasma is deposited within the annular space which is then followed by the contraction step of step v).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 9-14 rejected under 35 U.S.C. 102(b) as being anticipated by Geittner et al. (US 5,049,406).

In terms of claim 1, Geittner discloses in Figure 2 a method for manufacturing optical preforms, in which one or more layers of glass (19), doped or undoped, are deposited onto the internal surface of a hollow substrate tube (20), which deposition is effected by supplying one or more reactive gas mixtures of glass-forming compounds (21, SiCl₄) to the interior of the hollow substrate tube and subsequently generating a non-isothermal plasma in the hollow substrate tube, after which the substrate tube provided with layers of glass means of via a deposition process is subjected to a contraction process for the purpose of forming a massive rod, from which optical fibers are drawn, characterized in that the contraction process comprises the steps of:

- i) providing a hollow substrate tube (20) enveloped by a protective tube (19), which protective tube is stationary with respect to the hollow substrate tube, with the hollow substrate tube being enveloped by the protective tube along substantially the entire length thereof,
- ii) providing a resonator (25) which surrounds the protective tube;
- iii) supplying a plasma-forming gas (O₂, 22 and 23) to the annular space present between the outer circumference of the hollow substrate tube and the inner circumference of the protective tube,

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iv) generating a non-isothermal plasma in said annular space,
v) reciprocating the resonator in longitudinal direction with respect to the protective tube for the purpose of contracting the hollow preform into a massive rod.

The process of steps i)-v) are performed in the apparatus shown in Fig. 1.

Claim 2, the hollow substrate tube and the protective tube are kept in a horizontal position while in steps i) – iv) are being carried (Fig. 2-3).

Claim 4, the plasma is adapted to the increased volume of the annular space during step v) (col. 6, line 26 to col. 7, line 5).

Claim 5, argon is a known noble gas which is mixed with oxygen as a carrier gas in the process of PCVD.

Claim 7, the gas having a high temperature during the deposition process is introduced into said annular space (col. 3, lines 10-26).

Claim 8, Geittner teaches the tube 19 is made of quartz and the examiner considers this to be known in the art as a form of ceramic material (Example 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Geittner in view of Geittner et al. (US 4,857,094). Examiner shall refer to the primary reference as the '406 patent and the secondary reference as the '094 patent. The '406 patent discloses the invention of

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claim 1, however the '406 patent does not explicitly disclose the step of rotating the hollow substrate tube. The '094 patent discloses that it is known to rotate the hollow substrate however, the method steps of the '094 patent eliminates the necessity to rotate the hollow substrate for a uniform distribution of deposition of the glass forming gas (col.2 lines 1-25). Thus it would have been obvious to one having ordinary skill in the art to recognize the disclosure of both patents to be modifiable since 1) they are both from the same field of endeavor and 2) they are of the same inventive entity. **The motivation** for an artisan in the art of manufacturing optical fiber art to recognize rotating the hollow substrate during deposition process would increase the uniformity of the deposited gas to the annular space between the hollow tube and the hollow substrate thus the characteristics of the fiber such as boundary conditions and refractive index contrast would be uniform along the preform to provide a uniform fiber when drawn.

Claim 6 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geittner. Geittner disclosed 3 different manufacturing condition in which one may manufacture the preform. However, Geittner does not explicitly disclose the pressure during the contraction process is between 10 mbar and 25 mbar. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to adjust the range of pressure to determine the optimum pressure to collapse the hollow tube and the hollow substrate such that the preform won't crack with too much pressure or have air gap between the two hollow substrate thus not forming the preform properly. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. MPEP 2131.03 III.

Allowable Subject Matter

Claims 15, 17-18 are allowed. The searched prior art does not reasonably teach a refractive index contrast greater than 3% and the Specification teaches the criticality of having the thermal coefficient expansion value of the optical fiber at 25-300 degree Celsius and the alpha value is greater than $3.4 \times 10^{-6} \text{ K}^{-1}$ for proper cooling condition such that the fiber won't crack while cooling process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN D. CHIEM whose telephone number is (571)272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erin D Chiem/

/Frank G Font/

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Examiner, Art Unit 2883

Supervisory Patent Examiner, Art Unit 2883